

## PIPC Indicators

### Respiratory System

**1. Intranasal beclometasone should not be prescribed to children under 6 years.** Rationale: Intranasal steroids can have an adverse effect on growth and hypothalamic-pituitary-adrenal axis function in children. Systemic absorption is high for beclometasone compared to other intranasal corticosteroids. Reference: Scadding GK, Durham SR, Mirakian R, Jones NS, Leech SC, Farooque S, et al. BSACI guidelines for the management of allergic and non-allergic rhinitis. Clinical and experimental allergy: journal of the British Society for Allergy and Clinical Immunology. 2008; 38(1):19-42.

**2. An inhaled short acting beta-2 agonist should be prescribed to all children who are prescribed two or more inhaled corticosteroids.**

Rationale: Inhaled corticosteroids are preventer therapy. Mild asthma symptoms can often be controlled with a short acting beta-2 agonist. Reference: BTS/SIGN Asthma Guideline. 2014 [cited 2016 April]; Available from: <https://www.brit-thoracic.org.uk/guidelines-and-quality-standards/asthma-guideline/>.

**3. An inhaled short acting beta-2 agonist should be prescribed to children under 5 years who are also taking a leukotriene receptor antagonist.** Rationale: Mild to moderate symptoms of asthma respond rapidly to the inhalation of a short acting beta-2 agonist. There is evidence that in children under 5 years, leukotriene receptor antagonists should be first choice for add on therapy. Reference: BTS/SIGN Asthma Guideline. 2014 [cited 2016 April]; Available from: <https://www.brit-thoracic.org.uk/guidelines-and-quality-standards/asthma-guideline/>.

**4. An inhaled corticosteroid should be prescribed to children aged 5-15 years who are taking a long acting beta-2 agonist (LABA).**

Rationale: LABAs should only be prescribed as add-on therapy in asthma.

Reference: BTS/SIGN Asthma Guideline. 2014 [cited 2016 April]; Available from: <https://www.brit-thoracic.org.uk/guidelines-and-quality-standards/asthma-guideline/>.

**5. Children under 12 years who are prescribed a pressurised metered-dose inhaler (pMDI) should also be prescribed a spacer device at least every 12 months.**

Rationale: Children find it difficult to correctly administer asthma medication via a pMDI without a spacer device. Wear and tear may adversely affect the integrity of the device after 6-12 months. Reference: BTS/SIGN Asthma Guideline. 2014 [cited 2016 April]; Available from: <https://www.brit-thoracic.org.uk/guidelines-and-quality-standards/asthma-guideline/>.

NICE. National Institute for Health and Care Excellence: Guidance on the use of inhaler systems (devices) in children under the age of 5 years with chronic asthma. 2000 [cited 2016 April]; Available from: <https://www.nice.org.uk/guidance/ta10>.

NICE. National Institute for Health and Care Excellence: Inhaler devices for routine treatment of chronic asthma in older children (aged 5–15 years). 2002 [cited 2016 April]; Available from: <https://www.nice.org.uk/guidance/ta38>.

**6. Carbocysteine should not be prescribed to children**

Rationale: There is a lack of evidence for its efficacy in the general paediatric population.

Reference: Chalumeau M, Duijvestijn YC. Acetylcysteine and carbocysteine for acute upper and lower respiratory tract infections in paediatric patients without chronic broncho-pulmonary disease. The Cochrane database of systematic reviews. 2013; 5:CD003124

Smith SM, Schroeder K, Fahey T. Over-the-counter (OTC) medications for acute cough in children and adults in community settings. The Cochrane database of systematic reviews. 2014;11:CD001831.

Gastrointestinal System

**7. Loperamide should not be used in children under 4 years.**

Rationale: Anti-diarrhoeal agents are rarely effective and have troublesome side effects including nausea, flatulence, headache and dizziness. Reference: National Institute Health and Care Excellence: Guideline CG84: Diarrhoea and vomiting caused by gastroenteritis in under 5s: diagnosis and management. 2009 [cited 2016 April]; Available from: <https://www.nice.org.uk/guidance/cg84>.

**8. Domperidone should not be prescribed concomitantly with erythromycin.**

Rationale: Erythromycin inhibits domperidone metabolism; domperidone levels may be increased up to 3 fold. This can result in a small mean increase in QT prolongation. Reference: BNFC. British National Formulary for Children 2015 [cited 2015 June]; <https://www.medicinescomplete.com/mc/bnfc/2011/>.

Dermatological System

**9. Children prescribed greater than one topical corticosteroid in a year should also be prescribed an emollient.**

Rationale: Regular use of emollients can reduce the need for topical corticosteroids. Reference: NICE. Atopic eczema in under 12s: diagnosis and management. 2007; Available from: <https://www.nice.org.uk/guidance/cg57>.

**10. Tetracyclines should not be prescribed to children <12 years.**

Rationale: Rationale: Tetracycline binds to calcium and is deposited in growing bone and teeth which can cause staining and dental hypoplasia. Reference: BNFC. British National Formulary for Children 2015 [cited 2015 June]; <https://www.medicinescomplete.com/mc/bnfc/2011/>.

## Neurological System

### **11. Codeine/Dihydrocodeine medications should not be prescribed to children under 12 years.**

Rationale: Children under 12 years may be at increased risk of serious side effects e.g. respiratory depression. There is limited data available on the effectiveness of codeine/dihydrocodeine in children. Reference: MHRA. Medicines and Healthcare Products Regulatory Agency: Codeine for cough and cold restricted use in children. 2015 [cited 2016 April]; Available from: <https://www.gov.uk/drug-safety-update/codeine-for-cough-and-cold-restricted-use-in-children>.

### **12. Sedating antihistamines should not be prescribed to children under 2 years**

Rationale: Antihistamines often cause sedation. In some children, potentially life threatening side effects such as respiratory depression can occur. Reference: BNFC. British National Formulary for Children 2015 [cited 2015 June];

<https://www.medicinescomplete.com/mc/bnfc/2011/>].

MHRA. Medicines and Health Products Regulatory Agency: Over the counter cough and cold medicines for children drug safety update 2009 [cited 2016 April]; Available from: <https://www.gov.uk/drug-safety-update/over-the-counter-cough-and-cold-medicines-for-children>.